

REMARKS

Claims 1-7 are in the case. Claims 1-7 have all been rejected. Applicants respectfully request reconsideration of the rejection of claims 1-7.

Prior Art Rejections

The Examiner rejected claims 1-7:

- a) under 35 USC Section 102 (b) as anticipated by Thorsteinson et al., EP 425020 B1 (hereinafter “Thorsteinson I”);
- b) under 35 USC Section 103 (a) as being unpatentable over Thorsteinson I;
- c) under 35 USC Section 102(b) as anticipated by and also as being obvious under 35 USC Section 103(a) as being obvious over Thorsteinson et al., EP 480537 (hereinafter Thorsteinson II); and
- (d) under 35 USC Section 102 (b) as anticipated by and also as being obvious under 35 USC Section 103(a) as being obvious over Hayden et al, US 5,387,751.

Applicants request reconsideration of the rejection of claims 1-7.

Thorsteinson I, Thorsteinson II, and Hayden do not disclose a catalyst which has already produced more than about 1.1 kilometric tons of ethylene oxide per cubic meter of catalyst. See attached declaration of Dr. Liping Zhang, paragraphs 7-9. Thus, claims 1-7 are not anticipated by Thorsteinson I, Thorsteinson II or Hayden.

The calculated N^*/Z^* ratios for the examples in Thorsteinson I, II, and Hayden contain extreme variation. See declaration of Dr. Zhang at paragraphs 7-9. Thorsteinson I contains three experiments out of 25 which use an N^*/Z^* ratio of between 0.4 and 1.0, and the range of the N^*/Z^* ratio is from 0.01 to 1.36. Among these three experiments, i.e., Examples 28, 32, and 33, Example 33 had both N^* (38) and Z^* (80) values above the respective 20 and 40 values, as set forth in independent claim 1. Both Examples 28 and 33 are conducted under CO_2 concentrations of 3.0 mole %. Only five of the 13 experiments in Thorsteinson II use an N^*/Z^* ratio of between 0.4 and 1.0, and the range of the N^*/Z^* ratio is from 0.20 to 0.48. For Catalyst Nos. 7, 8, and 9, the Z^* value is 66.7, far above the value of 40 set forth in independent claim 1. Analysis of the data in Table 2 of Thorsteinson II shows that for younger catalysts, a lower N^*/Z^* ratio provides better performance. Compare Catalyst 4 at 20 days, having an N^*/Z^* ratio of 0.35, with an efficiency of 85.8%, % EO of 1.98, and temperature of 255C with Catalyst Nos. 1-3, which have an N^*/Z^* ratio of greater than 0.4. The increase in the N^*/Z^* ratio is coupled with a decrease in efficiency, or decrease

in %EO as compared to Catalyst No. 4. Thus, there is no teaching in Thorsteinson II of the claimed invention. Finally, in Hayden, none of the N^*/Z^* ratios which are greater than zero are within 0.4 and 1.0. There are no teachings in these references either separately or combined, that the N^*/Z^* ratio of 0.4 to 1.0 is beneficial for a fresh catalyst, let alone for a catalyst which has generated the amount of ethylene oxide in present claim 1.

As explained more fully in the declaration of Dr. Zhang, at paragraph 10, a catalyst which comprises a catalytically effective amount of silver on an inert, refractory solid support and at least one efficiency-enhancing salt of a member of a redox-half reaction pair which has generated more than 1.1 kilo metric tons of ethylene oxide per m^3 of catalyst benefits from operating within the claimed N^*/Z^* ratio. Operating the process at an N^*/Z^* ratio of between 0.4 and 1 for a catalyst which has produced in excess of 1.1 kilo metric tons of ethylene oxide per m^3 of catalyst provides a selectivity increase but does not affect activity. Further, the benefit of operating at the N^*/Z^* ratio is greater for the catalyst which has produced in excess of 1.1 kilo metric tons of ethylene oxide per m^3 of catalyst than the benefit to a catalyst which has produced less than that volume of ethylene oxide.

Section 112 Rejection

The Examiner has rejected claims 1-7 under 35 USC Section 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Applicants have amended claim 1 to set forth a method for the calculation of N^* and Z^* . No new matter is added by this amendment. Support can be found for this amendment on pages 9, lines 3 through page 10, line 35. Applicants request withdrawal of the rejection.

Applicants respectfully solicit a notice of allowance.

Respectfully submitted,

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